



UNITED  
BY OUR  
DIFFERENCE



# NEWHAM ROYAL DOCKS INFRASTRUCTURE STUDY

Main Report Executive Summary

21/06/2012

Confidentiality: Confidential



---

# Quality Management

Issue/revision	Issue 1	Revision 1	Revision 2	Revision 3
Remarks	ES Final	ES Final		
Date	19/06/2012	12/07/2012		
Prepared by	DALO	DALO		
Signature				
Checked by	GH	GH		
Signature				
Authorised by	CM	CM		
Signature				
Project number	11501713	11501713		
Report number				
File reference				

---

# NEWHAM ROYAL DOCKS INFRASTRUCTURE STUDY

## Main Report Executive Summary

21/06/2012

### Client

London Borough of Newham

### Consultant

WSP Group  
Unit 9, The Chase  
Hertford  
SG13 7NN  
UK

Tel: +44 (0)19 9252 6000  
Fax: +44 1992 526 001

[www.wspgroup.co.uk](http://www.wspgroup.co.uk)

### Registered Address

WSP UK Limited  
01383511  
WSP House, 70 Chancery Lane, London, WC2A 1AF

### WSP Contacts

David Owen

---

## Table of Contents

<b>ENERGY .....</b>	<b>5</b>
<b>UTILITIES - ELECTRICITY .....</b>	<b>6</b>
<b>UTILITIES - GAS.....</b>	<b>7</b>
<b>TRANSPORT .....</b>	<b>8</b>
<b>TELECOMMUNICATIONS.....</b>	<b>9</b>
<b>WASTE .....</b>	<b>10</b>
<b>STRATEGIC DRAINAGE.....</b>	<b>11</b>

## ENERGY

### LBN KEY DECISION – TO DECIDE WHETHER LBN IN PARTNERSHIP WITH THE GLA WISH TO PROMOTE A DISTRICT HEATING NETWORK FOR THE ROAL DOCKS AND CANNING TOWN

The scale and density of consented and planned development coming forward in the Royal Docks and Canning Town over the coming decades, combined with their potential for low to zero carbon heat supply, presents an opportunity to bring forward a strategic district heating network. The network would supply affordable heat to both new and existing properties creating significant investment and job opportunities. The alternative would be the 'business-as-usual' case of development-specific gas-fired combined heat and power schemes servicing individual developments.

#### Background

The strategic heat network would connect existing and new developments in West Silvertown, Canning Town and Custom House, Royal Victoria and Royal Albert and Royal Albert Basin and would form the critical link between the existing Olympic Park scheme (OPDES) to the west of the Royal Docks and future major heat network opportunities to the east of the Royal Docks. These are already being realised in East London with the TEG Group's anaerobic digestion project at the Sustainable Industries Park, Dagenham, which now has planning consent and waste contracts in place.

The major heat supply opportunities include the Thames Water site in Beckton, Excel's unutilised CHP plant, and a potential future energy from waste facility on the Transco site at Beckton Riverside. LBN and the GLA have a crucial role to play in bringing forward the heat network in the Royal Docks and Canning Town and needs to consider how it can further the development of the project.

If London Borough of Newham chooses to pursue the 'do-nothing' route it should, as a minimum, ensure that its local planning framework requires that local heat networks with gas fired CHP are considered and implemented if feasible, in line with GLA policy

### ACTIONS: FOLLOWING KEY DECISION TO PURSUE DISTRICT HEATING

ACTION 1	ACTION 2	ACTION 3	ACTION 4
<p>Require that all developments 'future-proof' for connection to the strategic DH network. GLA can advise developers on the practical implications of this.</p>	<p>Require new developments to install, where appropriate:</p> <ol style="list-style-type: none"> <li>1. Local-area heat networks connecting their development blocks to a single point suitable for connection to any strategic network.</li> <li>2. Design block heating systems around a single plant room with facility to connect to the strategic heat network</li> </ol>	<p>Work with the GLA to establish a development programme to carry out business planning for a special purpose vehicle to deliver the strategic heat network including:</p> <ol style="list-style-type: none"> <li>1. A detailed financial model of the phased development of the network;</li> <li>2. Establish funding sources to minimise the need to inject capital reserves (developer connection charge, Growth Fund, low cost borrowing through PWLB, CIL/S106, UK Green Investments, allowable solutions and the London Energy Efficiency Fund);</li> <li>3. Establish and implement a development programme considering the customer base identified in this scheme as well as identifying further opportunities not assessed so far under this study</li> </ol> <p>To note the Lea Valley District Heating Network project has just entered the business planning/SPV stage for their network project.</p>	<p>With GLA support, commence the development of the programme and its heat sources</p> <ol style="list-style-type: none"> <li>1. Engage with Excel to develop the interim use of their CHP plant to kick-start a district heating cluster around the Excel Centre.</li> <li>2. Engage with Chelsfield and the Silvertown Quays development to lead the establishment of an energy supply arrangement that will meet with the developments' requirements and facilitate connection to the strategic district heating network.</li> <li>3. Engage with the major supply-side stakeholders such as Thames Water, and Tate &amp; Lyle, to establish the commercial basis on which the strategic opportunity can be delivered.</li> <li>4. Establish the policy and necessary land agreements and take to market a concession for the development of an energy from waste plant by others at the Beckton Waste Treatment Facility site. The concession will require the successful bidder to implement the plant as CHP and commit to connecting to the heat network as part of their planning consent.</li> </ol>

---

## UTILITIES - ELECTRICITY

### KEY ACTION;

There is a pressing requirement for the GLA to re-negotiate their Special Connections Agreement with UKPN to reserve the capacity in their network for later use by themselves and the London Borough of Newham as development partner.

Under the terms of the agreement, UKPN agreed to reinforce their network and reserve 81.3MVA for use by the LDA – now incorporated into the Greater London Authority (GLA) – and their other development partners, subject to certain terms and conditions. These terms and conditions were not met due to the economic downturn and it is understood that the reserved capacity has reduced to circa 51.8MVA.

**The GLA should renegotiate the Agreement as a matter of urgency to protect their investment and to re-establish their right to the spare capacity which has not been released to date.**

The negotiations should take into account the current proposals put forward by UKPN to provide a new 132/11kV, 66MVA Main Substation and upgrade their 66/11kV Main Substation at Silvertown Quays together with the fact that Scottish and Southern Energy are planning to upgrade their 66/11kV Main Substation in the same location which will provide circa 5MVA spare capacity for use in the development area.

The scale and cost of the UKPN reinforcement works needs very careful consideration to determine how much of it would be regarded as 'network improvement' to UKPN's electrical infrastructure for which they would be responsible for funding.

LBN should take an active role in supporting the GLA in the above renegotiations.

### ACTIONS

Action 1	Action 2	Action 3
LBN should periodically review the projected increase in energy requirements and liaise with the utility companies to ensure that any necessary works required to upgrade the primary infrastructure networks are planned and carried out in a timely and cost effective way.	It is recommended that the GLA and/or LBN should commission any network improvement works identified in the energy reviews to ensure that the development area(s) have sufficient capacity to support the predicted growth, and to ensure that potential developers are encouraged to proceed with their projects in the knowledge that there are no substantial off-site network reinforcement costs to be funded.	LBN should seek to establish a good relationship with the network operators and appoint an officer to assume specific responsibilities for managing the energy reviews and updating and initiating the network requirements referred to above.

---

**UTILITIES - GAS****NO KEY ACTION;**

National Grid's Intermediate Pressure Gas Distribution System has sufficient capacity to meet the demand in the core strategy period (2012-2017).

There will be a need to locally provide/upgrade the Medium Pressure and Low Pressure Gas Distribution Systems to serve the individual developments, but these costs are anticipated to be borne by the individual developers.

The projected gas loads will vary significantly (decrease) if a district heating system is installed.

**ACTIONS**

Action 1	Action 2	Action 3
Review the energy profiles regularly – preferably on a 3 year basis but not exceeding 5 years	Liaise with utility company following the periodic review(s)	Adjust gas demand profiles to take into account the introduction of district heating network

## TRANSPORT

London Borough of Newham and Transport for London have worked in partnership to produce a Strategic Transport Study for the Royal Docks, which identifies required investment to support future development of the area including the Enterprise Zone. The Strategic Transport Study can be found as an Appendix to the Infrastructure Study.

### KEY IMMEDIATE ACTION;

Analysis and engagement as part of the Transport Study has highlighted a number of key challenges that help to form transport objectives for the Royal Docks area.

- Address the physical severance of the Docks, the River and other existing transport infrastructure (such as the A13) to support existing neighbourhoods and future growth by developing new and improving existing connections;
- Make the most out of the capacity from public transport infrastructure that has been committed to date, including the DLR, Emirates Air Line and from 2018 Crossrail (i.e. Custom House connectivity)
- Make the best use of changes to the highway, particularly the river crossings package, through consideration of location, mix and design of new development;
- Recognise that there is already congestion at junctions, and manage the impacts of growth to ensure that there is no detriment to highway conditions, particularly strategic corridors along the A13, A12 and A406; and
- Encourage and increase sustainable travel, particularly walking and cycling to integrate with public realm improvements to the area, to minimise air quality effects of growth and help to establish well connected neighbourhoods.

### ACTIONS

Short Term (to 2015)	Medium Term (2015-22)	Long Term (post 2012)
<p><u>New links to improve local connectivity:</u> The five key links that the Transport Study identified as priorities were:</p> <ul style="list-style-type: none"> <li>▪ Restoration of dock edges for cycle and pedestrian use, including key sections at ExCeL/Ramada Hotel and UEL/IVAX (£85k);</li> <li>▪ Continue NCN Route 13 along dockside edge at Fire Brigade practice site (vacant) to join UEL to Building 1000 (£65-110k);</li> <li>▪ Enhanced pedestrian and cycle links to Emirates Air Line Station via ExCeL and dock edge/Siemens Pavilion (£60k);</li> <li>▪ Enhanced cycle facilities on Silvertown Way; and</li> <li>▪ Connaught Bridge – Formalisation of walking and cycling route and improved lighting and wayfinding (£90k).</li> </ul> <p>Ensure that the <u>Emirates Air Line is well connected and integrated</u> into the fabric of the area, through efficient interchange between other modes of transport, improved local connectivity to the wider area and enhanced public realm. (£tbc)</p> <p><u>DLR Capacity &amp; Station Enhancements:</u> Key schemes to maintain public transport capacity on DLR stations along the Beckton Branch such as platform lengthening at Gallions Reach and Royal Albert Stations (£5M each). There is also the potential to enhance the environment of Beckton Branch Stations through station refurbishment (£6M) and, for example, canopy extensions (£7M).</p>	<p>There will be a continued need to develop an <u>improved walking &amp; cycling environment and connectivity</u> around the Royal Docks.</p> <p>The <u>Silvertown Tunnel:</u> A new road tunnel between Silvertown and north Greenwich. This would relieve congestion at the Blackwall Tunnel by providing an alternative route between the Royal Docks, Isle of Dogs, Lower Lea Valley and Greenwich Peninsula (£700M).</p> <p><u>Gallions Reach Ferry:</u> A new purpose-built modern vehicle ferry crossing at Gallions Reach to provide additional highway connectivity into the Royal Docks from the South East. (£170M).</p> <p><u>DLR 3 Car:</u> Procurement of new DLR carriages to allow the entire DLR network to run at 3 car lengths. This would provide additional capacity to support further growth in the area (£72.5M).</p> <p><u>Custom House Interchange:</u> Provide suitable standing space and effective interchange between buses and Crossrail to cater for emerging demand as well as providing an opportunity to change to bus services to provide better linkages across the Royals. This helps to maximise the catchment of Custom House Crossrail station in order to spread the benefits across the Royal Docks and wider Borough.(£tbc)</p> <p><u>Bus Services:</u> Maintaining bus capacity by protecting reliability and improving bus links, including effective traffic management and/or bus lanes. (£tbc)</p>	<p><u>DLR Extension to Dagenham Dock;</u></p> <p>A <u>fixed link (bridge/tunnel) at Gallions Crossing;</u> and</p> <p>An <u>improved junction at the A13/A406/Royal Docks Road</u> could also provide benefits</p>

---

## TELECOMMUNICATIONS

### KEY ACTION

Following receipt of the details of the BT and Openreach setting out how a superfast broadband service will be delivered across the borough by Summer 2012, the telecommunications infrastructure in The Royal Docks area appears to be of an acceptable standard to meet current needs and is well-positioned in terms of development commitment from Openreach to meet future needs.

The installation of additional fibre communication backbone(s) will need to be made to allow for the future installation of fibre networks and the extension of service provider coverage. It will also be required to meet future bandwidth requirements and to provide a telecommunications infrastructure that will enable the client to encourage new business development in the area.

### ACTIONS

#### Action 1

GLA with LBN to undertake Super Connected Cities bid for The Royal Docks

#### Action 2

LBN to Obtain 4G rollout plans from Mobile Operators once they become available

#### Action 3

LBN needs to confirm whether a second network operator is a requirement for the area.

#### Action 4

Review provision and revise this action plan based on the outcomes of actions 1, 2 and 3

## WASTE

### IF THE KEY DECISION TO PURSUE DISTRICT HEATING IS MADE THEN;

The option to develop an Energy from Waste (EfW) facility has been considered as an important part of the future infrastructure that could support development within the Royal Docks regeneration area.

An EfW facility developed within the area would not only provide a disposal solution for the resulting waste from mixed use development in the area but also has the potential to contribute to other objectives and priorities such as addressing fuel poverty and developing decentralised low carbon energy sources.

The review of options has identified a number of technically possible options which could contribute towards the objectives of the Royal Docks regeneration area and the corporate objectives of Newham. These options include:

- An incineration or gasification facility with a minimum capacity of 100,000 tonnes per annum.
- A 200,000 tonne per annum incineration facility.
- A 250-300,000 tonne per annum incineration with energy recovery facility taking SRF from North London.

The most likely of the three technically possible options is for a medium sized incineration or gasification facility with flexibility to process a range of feedstock from various waste sources.

The identification of a minimum feedstock for an EfW facility located in the Royal Docks enabled a detailed examination of the waste technologies considered.

Two potential technologies appropriate for processing 100,000 tonnes of residual waste and/or SRF are incineration with energy recovery, and gasification.

Following analysis of data (see main report) it is suggested that the net useable area of the Beckton Riverside site would be sufficient to accommodate the reference plant proposed.

The role of LBN would require them to become an enabling entity, ensuring the right conditions are created to attract inward investment into the site resulting in the development of a facility that meets local objectives.

*The detailed business case for any EfW facility would need to acknowledge that the treatment and disposal of municipal waste from Newham and its partner boroughs is already bound by a 25-year PFI contract. Any new EfW facility would primarily process commercial waste or municipal waste from other boroughs in the first instance.*

### ACTIONS

Action 1	Action 2	Action 3	Action 4	Action 5
LBN to engage with the current site owner	LBN to monitor developments in emerging waste technologies	LBN/GLA to engage with the waste sector	LBN to address potential policy conflicts	LBN/GLA to develop a site planning brief or investment prospectus

## STRATEGIC DRAINAGE

This theme was divided into three distinct areas: Potable Water, Foul Water and Surface Water & Flooding

### KEY ACTION;

There is a need to address, promote, ensure and monitor the efficient use of water within the Royals to limit the need to reinforce the existing potable water strategic system. The Code for Sustainable Homes and the revised Building Regulations should ensure new developments minimise their use of potable water. The issue with existing households and to a degree developments can be partly tackled by retrofitting water efficient devices.

Within the Royals three Critical Drainage Areas (CDA) have been identified via the Surface Water Management Plan (SWMP). A review of these against the spatial principles for the Royals and the existing drainage infrastructure should be explored, and recommendations made which align with London Plan policy for opening up of watercourses and integration of green and blue corridors.

### ACTIONS

Action 1	Action 2	Action 3	Action 4
Introduce the retrofitting of water efficient devices	Set up Partnership forums (Extension of NRSWA) to highlight future regeneration proposals	Review grant and funding availability for householders and developers	Review of CDA SWMP solutions against Spatial Principles and Existing Infrastructure for the Royals

**WSP UK Limited**

Unit 9, The Chase

Hertford

SG13 7NN

UK

Tel: +44 (0)19 9252 6000

Fax: +44 1992 526 001

[www.wspgroup.co.uk](http://www.wspgroup.co.uk)

UNITED  
BY OUR  
DIFFERENCE

